

REMARKS

I. Introduction

With the cancellation herein without prejudice of claim 91, claims 78 to 90 and 92 to 95 are pending in the present application. In view of the foregoing amendments and following remarks, it is respectfully submitted that all of the presently pending claims are allowable, and reconsideration is respectfully requested.

II. Rejection of Claims 81 to 95 Under 35 U.S.C. § 112, Second Paragraph

Claims 81 to 95 were rejected under 35 U.S.C. § 112, second paragraph as indefinite for allegedly failing to particularly point out and distinctly claim the subject matter of the invention. The Office Action alleges that it is unclear how layers in claim 81 are alternated. The Office Action additionally questions if there are two or three layers in the claimed structure.

Although the Final Office Action rejections are not agreed with, to facilitate prosecution, Applicants have amended claim 81 without prejudice as suggested in the Final Office Action. In view of the foregoing amendments, it is respectfully submitted that claim 81 fully complies with the requirements of 35 U.S.C. § 112, and withdrawal of this rejection is therefore respectfully requested.

The Final Office Action rejects claim 82 as indefinite, wherein it is alleged that the term "metal in 'carbon containing metal', lacks clear antecedent basis." Office Action at p. 2. The Office Action further alleges that it is unclear what hard subgroup metals are.

Although Applicants do not agree with the merits of this rejection, in order to further prosecution, Applicants have amended claim 82, without prejudice, such that the carbon layers include one of amorphous carbon containing hydrogen, amorphous hydrogen-free carbon, carbon containing silicon, and carbon containing a metal wherein the carbon containing the metal is selected from hard B-group metals. Support for the amendment may be found, for example, on page 5, lines 1 to 10. The amendment to claim 82 specifically identifies that the carbon contains a metal which is selected from hard B-group metals. Examples of such metals are, as described, for example, on page 23, lines 4 and 5 of the Specification, tungsten, chromium and titanium. In view of the foregoing, it is respectfully submitted that this

rejection has been obviated, and withdrawal of this rejection is therefore respectfully requested.

The Final Office Action rejects claims 91 and 92 as unclear, where the Final Office Action alleges that it is unknown whether there are three or two alternating layers. Claim 91 has been canceled herein without prejudice, thereby rendering moot this rejection with respect to claim 91.

Although Applicants do not agree with the merits of the rejection of claim 92, in order to further prosecution, Applicants have amended claim 92 without prejudice such that the hard material layers are made of MeC and the carbon layers are made of C-(MeC). Support for the amendments may be found, for example, on page 7 lines 5 to 13 of the Specification. In view of the foregoing, it is respectfully submitted that claim 92 fully complies with the requirements of 35 U.S.C. § 112, and withdrawal of this rejection is therefore respectfully requested.

The Final Office Action also rejects claim 94 wherein it is alleged that the claim is not understandable. Although Applicants do not agree with the merits of this rejection, in order to further prosecution, Applicants have amended claim 94 without prejudice to change "one of the hard material layers, the carbon layers, and the silicon layers contain at least one of silicon, boron, nitrogen, oxygen, carbon, and a metal, and boron and carbon are not simultaneously present in the one of the hard material layers, the carbon layers, and the silicon layers." to --one of the hard material layers and the silicon layers contain at least one of silicon, boron, nitrogen, oxygen, carbon, and a metal, and boron and carbon are not simultaneously present in the one of the hard material layers and the silicon layers--. Applicants respectfully submit that claim 94 as amended herein fully complies with the requirements of 35 U.S.C. § 112.

III. Rejection of Claims 81 to 95 Under 35 U.S.C. § 102(b)

Claims 81 to 95 were rejected under 35 U.S.C. § 102(b) as anticipated by U.S. Patent No. 4,619,865 ("Keem et al."). Applicants respectfully submit that Keem et al. do not anticipate the present claims for the following reasons.

Amended claim 81 relates to a multilayer structure. Amended claim 81 recites alternating individual hard-material layers and individual carbon layers or individual silicon layers. Amended claim 81 further provides that the hard-material layers include a metal, a metal carbide, a metal silicide, a metal carbo-silicide, a

metal siliconitride, a metal carbide-containing carbon, or a metal silicide-containing silicon, and a mixture of at least two of the metal, the metal carbide, the metal silicide, the metal carbo-silicide, the metal siliconitride, the metal carbide-containing carbon, and the metal silicide-containing silicon. Claim 81 has been amended herein without prejudice to delete tungsten and molybdenum as the metal. Claim 81 now recites that the metal includes chromium or niobium.

The Office Action alleges that Keem et al. anticipate claims 81 to 95 by showing alternating layers such as a layer chosen for hardness and another chosen for lubricity. The Office Action alleges that Keem et al. provides a hardness layer including carbon or WC and a layer for lubricity which includes molybdenum boride or BC.

Keem et al. are limited to providing the following combinations of elements for production of "hard" layers: titanium and boron; titanium and carbon; tungsten and boron; molybdenum and boron; carbon; aluminum and oxygen; silicon and nitrogen; boron and nitrogen; tungsten and carbon; tantalum and carbon; titanium and nitrogen; zirconium and oxygen; and combinations of such materials. Col. 2, lines 58 to 68. Keem et al. do not disclose, or even suggest, the presence of chromium and niobium. As a result, Keem et al. do not disclose, or even suggest, the features of amended claim 81. Applicants respectfully request withdrawal of the 35 U.S.C. § 102(b) rejection of claim 81.

To anticipate a claim, each and every element as set forth in the claim must be found in a single prior art reference. Verdegaal Bros. v. Union Oil Co. of Calif., 814 F.2d 628, 631, 2 U.S.P.Q.2d 1051, 1053 (Fed. Cir. 1987). Furthermore, "[t]he identical invention must be shown in as complete detail as is contained in the . . . claim." Richardson v. Suzuki Motor Co., 868 F.2d 1226, 1236, 9 U.S.P.Q.2d 1913, 1920 (Fed. Cir. 1989). That is, the prior art must describe the elements arranged as required by the claims. In re Bond, 910 F.2d 831, 15 U.S.P.Q.2d 1566 (Fed. Cir. 1990). As more fully set forth above, it is respectfully submitted that Keem et al. do not disclose, or even suggest, all of the limitations of claim 81, including alternating individual hard-material layers and one of individual carbon layers and individual silicon layers as recited with the materials recited. It is therefore respectfully submitted that Keem et al. do not anticipate claim 81.

As for claims 82 to 90 and 92 to 95, which ultimately depend from claim 81 and therefore include all of the limitations of claim 81, it is respectfully

submitted that Keem et al. do not anticipate these dependent claims for at least the same reasons given above in support of the patentability of claim 81.

IV. Conclusion

It is therefore respectfully submitted that all pending claims are allowable. All issues raised by the Examiner having been addressed, an early and favorable action on the merits is earnestly solicited.

Respectfully submitted,

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